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ABSTRACT

Whereas aggressive multimodal therapies are responsible for improved survival rates of children and adolescents diagnosed with cancer, concern has grown regarding the potential for adverse and delayed developmental effects resulting from these treatments. In light of this concern, this study assessed 207 adult survivors of childhood cancer in terms of their resolution of developmental stage conflicts and capacity for intimacy. The research marked the first large scale study of the developmental impact of the diagnosis and treatment of childhood cancer on long-term survivors. Results suggest that adult survivors followed an essentially normal developmental profile. Older male long-term survivors, however, were experiencing developmental disruptions when compared to the other age and gender groups. These disruptions included a focus on short-term gratification, little investment in long-term goals, low satisfaction with life, and the belief that life has been characterized by lost opportunities. The older male survivor profile also suggests a perception of the world as unsafe and threatening, and they reported feeling distrustful and isolated. Although findings agree with prior reports of essentially normal functioning and adjustment in adult long-term survivors, older male survivors appear to be reporting developmental distress in numerous areas. (RJM)

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Developmental Status and Intimacy in Adult Survivors of Childhood Cancer

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Abstract

While aggressive multimodal therapies are responsible for improved survival of children and adolescents diagnosed with cancer, concern has grown regarding the potential for adverse and delayed developmental effects resulting from these powerful treatments. In light of this concern, the present study assessed 207 adult survivors of childhood cancer in terms of their resolution of developmental stage conflicts and capacity for intimacy. When compared to norms, mean scores for younger and older female survivors and younger male survivors reflected normal developmental profiles. The older male profile, however, reflected a focus on short-term gratification, little investment in long-term goals, low life satisfaction, and diminished intimacy. As such, these survivors may be at increased risk for developmental sequelae as they age.

Developmental Status and Intimacy in Adult Survivors of Childhood Cancer

Current estimates of the long-term cancer survivor population in the United States place the number of survivors at approximately five million, a number that exceeds the current population of 39 of the 50 States (Bloom et al., 1988). This encouraging statistic reflects the improved prognosis associated with modern cancer therapies, with treatments for childhood and adolescent cancer, in particular, becoming increasingly successful. Indeed, the improved survival for pediatric patients with four common types of cancer - acute lymphoblastic leukemia, Hodgkin's disease, non-Hodgkin's lymphoma and osteosarcoma, has been dramatic (Young, et al, 1986).

As a result of these advances, the cohort of adult long-term survivors of pediatric cancer has grown, and for the first time large numbers of these survivors are entering young and middle adulthood and are making decisions regarding marriage, reproduction, and other major life transitions. While aggressive multimodal therapies are responsible for this improved survival, concern has also grown regarding the potentially adverse and delayed developmental effects of these powerful treatments on the adult survivor cohort. Despite this, few studies have examined long-term survivors of childhood cancer in terms of their specific developmental status, choosing instead to focus on more global indicators such as marriage rates, employment, etc. The present study, however, assessed a large sample of adult survivors of childhood cancer in terms of their successful resolution of developmental stage conflicts, core features of Erikson's epigenetic model, one of the most prominent developmental theories. In

addition, the long-term survivor's current capacity for intimacy, a key developmental construct, was also investigated. Three levels of intimacy were assessed; general (dispositional) warmth and gregariousness, interpersonal, and marital/partner based. Previous research has identified impaired capacity for intimacy as a possible long-term sequelae of childhood cancer (Cella & Tross, 1986).

Method

Subjects The medical records of 1237 previously untreated patients who were less than 20 years of age when diagnosed with cancer were abstracted. A subgroup of this population (n=220) who are currently 18 years of age or older and five or more years after diagnosis were eligible for enrollment. To date, 207 (55% male; 45% female) have currently returned completed questionnaires. The mean age at diagnosis was 11.3 years and the mean age at evaluation was 26.9 years. The mean follow-up interval was 15.6 years. The most frequent diagnoses, accounting for 67% of all cases, were Hodgkin's Disease, Acute Lymphoblastic Leukemia, Non-Hodgkin's Lymphoma and Osteosarcoma.

The assessment battery consisted of the following measures:

1) Measure of Psychosocial Development (MPD; Hawley, 1988)

The MPD is a 112 item self-report inventory that assesses psychosocial functioning in terms of Erikson's developmental theory. The inventory assesses the eight positive and negative stage attitudes (Trust-Mistrust; Autonomy-Doubt; Initiative-Guilt; Industry-Inferiority; Identity-Identity Confusion; Intimacy-Isolation; Generativity-Stagnation; and Ego Integrity-Despair) and the individual's success in resolving these stage conflicts. The measure has been

standardized on a national sample of 2,480 individuals aged 13 to 86, and has excellent psychometric properties (Hawley, 1988).

2) Dyadic Adjustment Scale (DAS; Spanier, 1976)

The DAS, a 32 item measure, is one of the most widely used measures of satisfaction in marriage or similar dyads. The DAS has an alpha of .96 for the overall satisfaction score, and good discriminant validity (Spanier, 1976). The DAS was used to assess marital/partner specific intimacy.

3) Miller Social Intimacy Scale (MSIS; Miller & Lefcourt, 1982)

The MSIS is a 17 item Likert scale questionnaire that assesses the subjects perceived level of intimacy in reference to their closest interpersonal relationship. The MSIS has Cronbach alpha coefficients ranging from .86 to .91 and test-retest reliabilities of r = .90 over a two month interval (Miller & Lefcourt, 1982). The MSIS was used in the present study to assess the long-term survivors most intense level of general intimacy.

4) Neo Personality Inventory; Warmth and Gregariousness Subscales (NW & NG; Costa & McCrae, 1985).

The NEO Personality Inventory is a widely used standardized measure of normal adult personality traits. Two specific facets of the broader extraversion trait, warmth and gregariousness, were used to index global intimacy. The NEO has impressive psychometric properties and well established levels of reliability and validity (Costa & McCrae, 1985).

Results

Developmental Profiles.

Mean MPD profiles for female long-term survivors aged 18-24 and 25-49 are reported in Figure 1. Mean profiles for male long-term survivors aged 18-24 and 25-49 are reported in Figure 2. When compared to the standardization sample, mean scores for the female long-term survivors reflected adequate resolution across all developmental conflicts and an essentially normal developmental profile.

Mean resolution scores for the younger male survivors were also essentially within normal limits. The profile for the older male survivors, however, was strikingly at variance, with mean scores for the Generativity-Stagnation and Ego Integrity-Despair resolution scales markedly depressed (T-scores 36 and 38, respectively), as were mean scores for the Trust-Mistrust resolution scale, T-score 41, and Intimacy-Isolation resolution scale, T-score 43.

Intimacy Relationships

Table 1 reports the relationship of the MPD Resolution Scales and the intimacy measures. Clearly, intimacy across all assessed levels was strongly related to successful resolution of developmental stage conflicts. Gregariousness, however, the most general measure of intimacy, exhibited the weakest relationship to resolution scores. As expected, the Intimacy-Isolation resolution scale had the strongest relationship with all levels of intimacy, with higher levels of intimacy associated with more successful resolution.

Discussion

Contemporary multimodal treatments for childhood and adolescent cancer have resulted in an expanding cohort of long-term survivors. The results of the present investigation, the first large scale study of the developmental impact of the diagnosis

and treatment of childhood cancer on adult long-term survivors, reveals, on the whole, an essentially normal developmental profile. Older male long-term survivors, however, were experiencing developmental disruption in contrast to the other age and gender groups. The scores for the Generativity-Stagnation and Ego Integrity-Despair scales reflect a focus on short-term gratification, little investment in long-term goals, low satisfaction with life, and the belief that life has been characterized by lost opportunities. The older male survivor profile also suggested a perception of the world as unsafe and threatening, and the presence of mistrust and isolation.

Overall, however, the present results are consistent with prior reports of essentially normal functioning and adjustment in adult long-term survivors of childhood cancer (Zevon, Neubauer, Green, 1990; Green, Zevon, Hall, 1991). Older male survivors, however, appear to be reporting developmental distress in a number of areas. As such, they may be at increased risk for subsequent developmental sequelae as they continue to age and encounter future life stressors.

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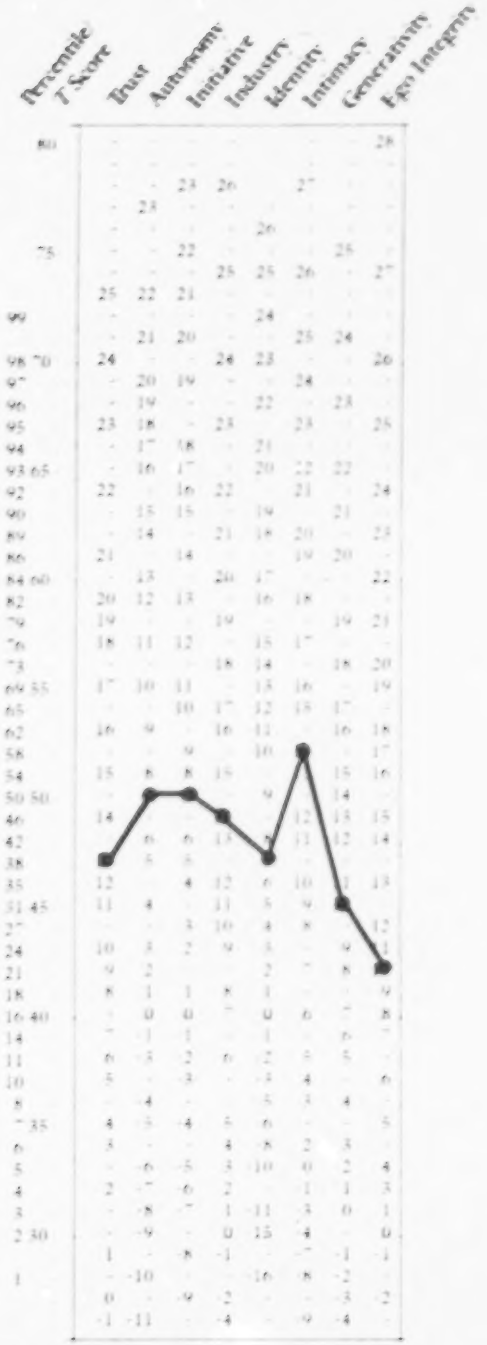
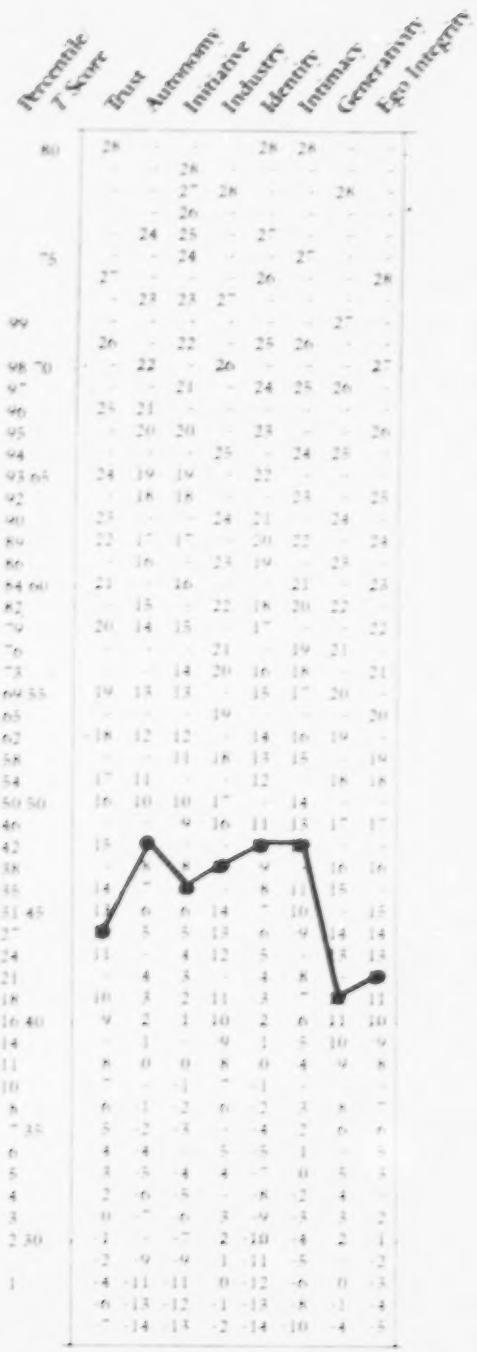
Figure 1

Mean MPD Resolution Scale Profiles: Females

Ages 18 - 24



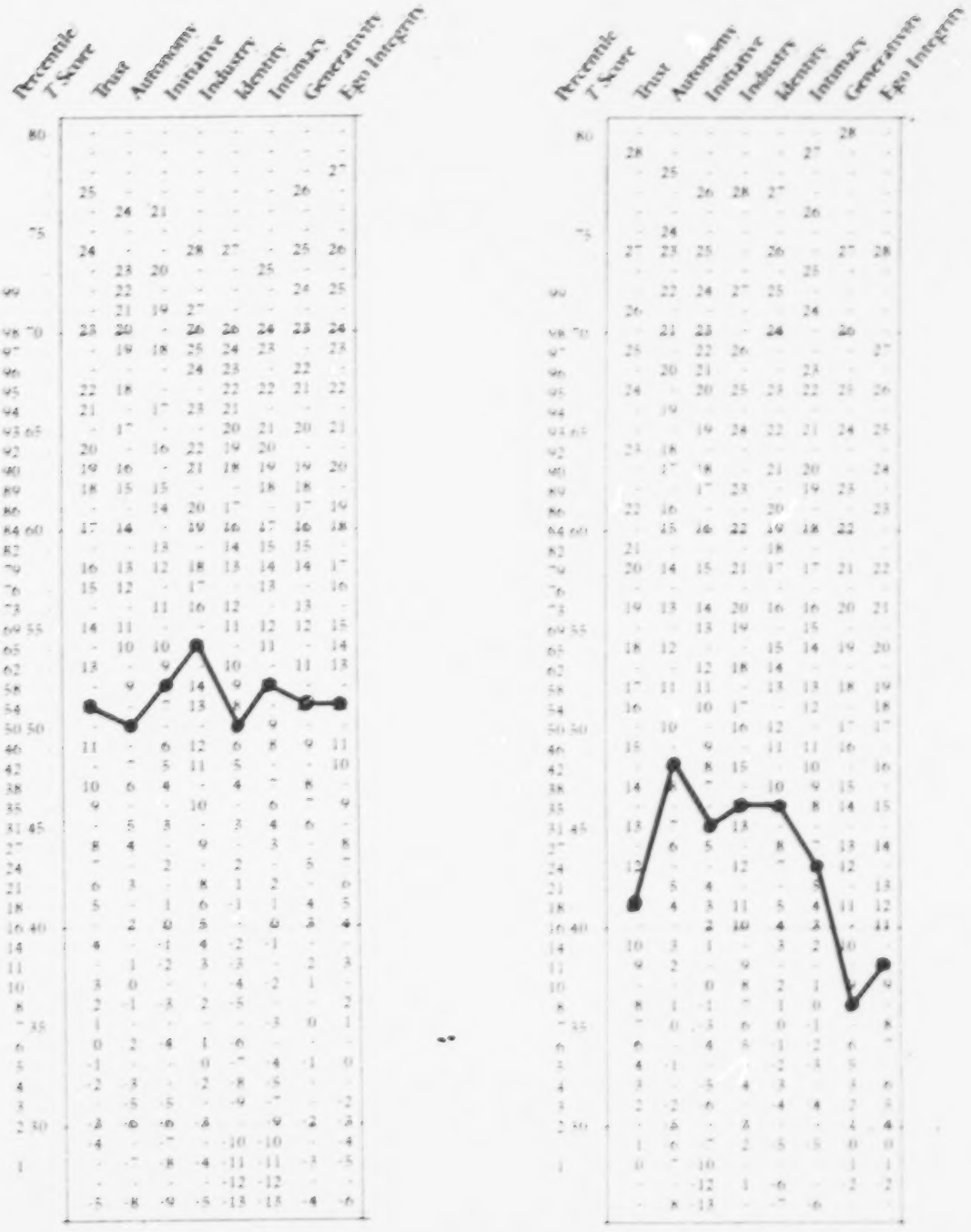
Ages 25 - 49



Note: To conserve space, only the positive anchors for the resolution scales are indicated.

Figure 2

Mean MPD Resolution Scale Profiles: Males



Note: To conserve space, only the positive anchors for the resolution scales are indicated.

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Table 1

Correlations Between the MPD Resolution Scale Scores and the Intimacy Measures

MPD Scale	Intimacy Measure			
	MSI	DAS	NW	NG
Trust-Mistrust	40	39	46	28
Autonomy-Shame & Doubt	20[b]	35	30	14[b]
Initiative-Guilt	34	38	41	31
Industry-Inferiority	34	33	44	21[a]
Identity-Identity Confusion	33	34	33	11[ns]
Intimacy-Isolation	46	38	69	52
Generativity-Stagnation	43	45	56	33
Ego Integrity-Despair	39	37	40	18[b]

Note: All correlations are significant (two-tailed) at $p < .001$ except those marked a for $p < .01$, b for $p < .05$, and ns for nonsignificant. Ns range from 90 to 131.

MSI = Miller Social Intimacy; DAS = Dyadic Adjustment Scale; NW = NEO Warmth; NG = NEO Gregariousness.